

REMARKS

Non-Entry of Claim Amendment in Prior Paper

Applicants acknowledge the Examiner's statement in the present Office action that "for examining purposes claims 2-5, 8 and 11-13 have not been canceled." Accordingly, claims 1-59 were pending prior to this amendment.

Claim Amendment

Applicants have amended claims 1, 14, 18, 31 and 37. Applicants have canceled claims 2,3, 5, 11-13, 25-27, 32 and 46-48. Claim 1 now includes the limitations of canceled claims 2, 3, 5, and 11-13. Claim 18 now includes the limitations of canceled claims 25-27. Claim 31 now includes the limitations of canceled claim 32. Claim 37 now included the limitations of claims 46-48. These claim amendments are fully supported by the specification and, therefore, do not introduce any new matter under 35 U.S.C. §132

Objection under 37 C.F.R. 1.75(c)

The Examiner has objected to claims 2-6, 8 and 11-13 under 37 C.F.R. §1.75(c) as being of improper dependent for failing to further limit the subject matter of a previous claim. Applicants have further amended Claim 1 to omit the limitations of claims 4, and 6-8. Accordingly, claims 4 and 6-8 are pending, further adding limitation to claim 1 from which they depend. Claims 2, 3, 5 and 11-13 have been canceled since they have been

included in amended Claim 1. The Examiner's objection to Claim 6 is now moot because Claim 1 no longer includes the mass spectrometer limitation of Claim 8.

Rejections under 35 U.S.C. 102(b)

The Examiner has rejected Claim 31 under 35 U.S.C. 102(b) as being anticipated by Jo, *et al.* (1999). Applicants respectfully traverse this rejection for the following reasons.

Jo discloses basic techniques for manufacturing a multi-layered microfluidic device using PDMS soft lithography. Jo does not teach any specific use or application devices resulting from using the manufacturing process disclosed therein. Applicants agree with the Examiner well statement made on page 4 of the Office action "Jo teaches that many different complex structures can be created bu[t] does not teach specifics of how they can be created or what the[y] will include". Nor does Jo disclose providing the pump and valve system of the claimed invention within the microfluidic device.

Accordingly, it cannot be fairly suggested that Jo discloses each and every element of the claimed invention because Jo does not disclose pump and valve systems where the analytical device has a fluid flow channel is located within a first elastomeric layer of the microfluidic device, a second elastomeric layer on top of the first elastomeric layer, the second elastomeric layer comprising a pressure channel, and a pump and valve system within the second elastic layer for controlling the flow of fluid within the fluid flow channel. Applicants, therefore, respectfully request withdrawal of this rejection.

Rejections under 35 U.S.C. 102(a)

The Examiner has rejected claims 18-24, 31 and 35-44 under 35 U.S.C.102(a) as being anticipated by Chan, *et al.* Applicants respectfully traverse this rejection for the following reasons.

Chan discloses a PDMS microfluidic device used to introduce samples into a mass spectrometer. Samples loaded into the devices of Chan are moved about the device by electroendoosmosis (see abstract). Applicants claimed invention includes a pump and valve system, not disclosed by Chan, which relies on mechanical sample movement, not electroendoosmotic sample movement because the microfluidic device further comprises a second elastic layer on top of the first elastic layer, the second elastic layer comprising a pressure channel, the microfluidic device further comprising a pump and valve system within the second elastic layer for controlling the flow of fluid within the fluid flow channel. Moreover, Chan does not disclose a multi-layer microfluidic device as is with the claimed invention. Since Chan, as a single prior art document, does not provide for each and every element of the claimed invention, it cannot be fairly said that Chan anticipates the claimed invention. Accordingly, Applicants respectfully request withdrawal of this rejection.

In the event that the Examiner maintains this rejection despite Applicants' arguments, Applicants reserve the right to offer proof of conception of the claimed invention prior to the 102(a) publication date of Chan.

Rejections under 35 U.C.S. 103(a)

The Jo Combination

The Examiner has rejected claims 1-30 and 32-59 under 35 U.S.C. 103(a) as being unpatentable over Jo as applied to claim 31, and in further view of Unger or Duffy and Chan, Figeys, Parce, Ullman, or Xue. Applicants respectfully traverse this rejection for the following reasons.

Each of the references disclosing a microfluidic device for introducing samples into analytical devices, Chan, Figeys, or Xue, intrinsically provide complete details for moving samples through the device, for example, electroendoosmotic or external pumping systems, none of which teach or suggest making a microfluidic device comprising a second elastic layer on top of a first elastic layer, the second elastic layer comprising a pressure channel, the microfluidic device further comprising a pump and valve system within the second elastic layer for controlling the flow of fluid within the fluid flow channel. Moreover, the other references, Ullman, Parce, Duffy, Jo, and Unger, do not teach or suggest using the devices disclosed therein as means for introducing samples into analytical devices. Indeed, combining Ullman, Parce, Duffy, Jo, or Unger with Chan, Figeys, or Xue would defeat the operation of each reference, as a whole, because each has already provided a complete system. It is well settled that a reference cannot be combined with another reference if doing so would defeat the object of the second reference. The Examiner has not produced a reference reconciling the two distinct sets of references causing one sample movement system to replace another, suitable system, strongly evidencing prohibited hindsight reconstruction. In other words, one of ordinary skill in the art at the time of the invention would not have been motivated to change the functioning of the sample introduction devices provided by the Examiner's cited art by, as the Examiner suggests, incorporating different sample movement means

as described in Unger, Duffy, Chan, Figeys, Ullman, or Xue. Accordingly, Applicants respectfully request withdrawal of this rejection.

The Chan combination

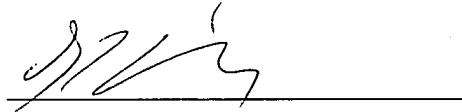
The Examiner has rejected claim 1-17, 25-30, 32-34 and 45-59 under 35 U.S.C. 103(a) as being unpatentable over Chan as applied to claims 18-24, 31, and 35-44, and further in view of Jo, Unger or Duffy, Figeys, Parce, Ullman or Xue. Applicants respectfully traverse this rejection for the following reasons.

Chan discloses a single layer PDMS microfluidic device in which samples are moved therein by electroosmotic pumping. To place, as the Examiner suggests, a mechanical pump within the fluid path of an electroosmotically driven device would defeat the action of electroosmotic pump by interrupting electrical connections when the fluid/electrical path is separated by a mechanical pump, thus defeating the use of the electroosmotic pump. It is well settled that a reference used in a combination under 103(a) must be used as a whole and not in contradiction to what it discloses. Chan teaches away from the Examiner's combination. Accordingly, Applicants respectfully request withdrawal of this rejection.

CONCLUSION

Applicants believe the claims, as presented herein, are patentable. Accordingly, a Notice of Allowance is respectfully requested. If in the event the Examiner believes an interview would be helpful, Applicants' counsel can be reached at (650) 266-6036.

Presented with the highest regards,

A handwritten signature in black ink, appearing to read 'G. Heinkel', is written over a horizontal line.

Gregory L. Heinkel PTO Reg. No. 44,755

Gregory L. Heinkel

c/o Fluidigm Corporation

7100 Shoreline Court

So. San Francisco, CA 94080